Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of the Commission's Rules Concerning Low Power Radio and Automated Maritime Telecommunications System Operations in the 216-217 MHz Band	)	WT Docket No. 95.56 RM-7784

COMMENTS OF
SELF HELP FOR HARD OF HEARING PEOPLE, INC. (SHHH)

Introduction

1. Self Help for Hard of Hearing People, Inc. (SHHH) sends these comments in response to the Commission's Notice of Proposed Rule Making, FCC 95-174. SHHH is the national consumer organization representing people who are hard of hearing who use a variety of technological devices, including auditory assistance devices, to boost their residual hearing.

2. SHHH is very pleased with the Commission's proposal to create a new Low Power Radio Service (LPRS) in the 216-217 MHz band which may be used by auditory assistance devices. By creating interference-free channels it offers a very promising alternative to the existing 72-76 MHz band where systems are experiencing increasing, serious interference from high-powered users.[1]

[1] The new LPRS is not a solution to the interference problem in the 72-76 MHz band but provides a very good alternative. SHHH is working with the Commission, and must continue to work with the Commission to come up with workable solutions for the severe

3. Auditory assistance devices allow millions of adults and children to remain independent and continue to function in the mainstream. Indeed they are mandated by the Americans with Disabilities Act (ADA) of 1990 as an means for providing communication access in the workplace, schools, courtrooms, and other state and local government facilities and public accommodations.

However, for several years now these auditory assistance devices have been subjected to increasing interference, particularly in school classrooms, making them unusable in many situations.[2] It is extremely disturbing that children who rely on FM systems to hear what is going on in the classroom can be without these systems for as long as two weeks while solutions to the interference are found. Since children want to be like everyone else and balk at wearing these devices in the first place, it can be very difficult, not to mention the instructional time wasted, to encourage them to resume using the FM system.

Nationwide, the interference has created frustration not only

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interference being experienced nationwide in the 72-76 band.

[2] The SHHH Board of Trustees Technical Committee, in collaboration with the Educational Audiology Association (EEA), conducted a survey in the Fall of 1994 on the use of FM systems in schools across the U.S. The results showed that 76% of the respondents reported interference, while 66% stated these problems are on the increase. (For a summary of the survey see Attachment 1.)

for consumers, teachers, and manufacturers but also for facility managers who consider that they are in full compliance with the ADA but are receiving many complaints about unusable systems. One auditory assistance device manufacturer alone has installed over 100,000 of these systems. When a consumer requests to use an FM in a theater, for example, and cannot hear anything because of interference, they put the blame on the system and the facility not always realizing the source of the problem. This affects the number of people who request these devices after one or two unsatisfactory tries.

Therefore, it is vital that the Commission adopt the proposed rules as quickly as possible so that the benefits of interference-free channels can be made use of by the 26 million people who are hard of hearing in the U.S. in their daily lives and that facility managers can be assured of interference-free installations.

Secondary Status

4. The Commission proposes shared use of the 216-217 MHz band, on a secondary non-interference basis. This would seem to put auditory assistance devices in the exact same position they are in right now with the 72-76 MHz band and which is allowing major interference problems from high-powered paging and other operations. Although the 216-217 MHz band is proposed as a LPRS there is no way to predict what explosions of technology may occur

and lead to unexpected interference sources, just as has occurred in the 72-76 MHz band with the advent of hundreds of paging companies.

We therefore strongly urge the Commission to grant primary status for the use of auditory assistance devices in the 216-217 MHz band, or at a minimum set aside a number of channels for the permanent, exclusive use of auditory assistance devices and that no service be given primary status over LPRS other than television broadcasting on Channel 13. This would be in line with one of Chairman's Hundt's ten goals "for making equal access a reality", "assign permanent, exclusive frequencies for assistive listening devices."[3]

Licensing

5. SHHH supports licensing for systems with more than a certain power level to have some control over interference in the band. For equipment operating at low power, which has much less potential for interference, we would recommend no licensing.

SHHH urges that very low power portable auditory assistance

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[3] FCC News Release, June 28, 1995 on address before the Eleventh International Telecommunications for the Deaf, Inc. (TDI) Convention at Cambridge, Massachusetts.

transmitters, with output power no greater that 10 milliwatts, be authorized to operate without license and without restriction to a particular system service area. Such very low power transmitters have little or no potential to cause interference with TV 13 or other services.

Many individuals who are hard of hearing purchase their own personal FM systems for use at home or when they are travelling. A licensing requirement would create additional hurdles for these individuals to overcome, both bureaucratic and economic. In addition, individuals with hearing problems often take time to learn to effectively use technology and need a lot of encouragement before they will seek help for their hearing problem. A licensing requirement might discourage them from seeking a very effective solution.

We strongly recommend that LPRS systems with transmitter output power greater than 10 milliwatts be licensed. We also urge that licenses be issued for specific locations instead of cellular system service areas. Issuing licenses for specific locations will facilitate cooperation among licensees in selection of channels to avoid mutual interference.

Technical Standards

6. In NPRM 95-174 the Commission seeks specific comments on the proposed rules set forth in Appendix B, and the following questions.

a) Instead of designating 30 channels for low power use, what are the advantages and disadvantages of permitting non-channelized emissions within the 216-217 band?

In 95.1043, the Commission proposes a standard channel bandwidth of 25 kHz. However, a LPRS system may subdivide channels and/or combine two or more adjacent channels. Presently available auditory assistance systems operate in the 72-76 MHz band with channel bandwidth of 50 kHz (narrow band) or 200 kHz (wide band). In certain educational settings the 200 kHz bandwidth is considered more effective, especially for students with hearing loss who are learning to speak. For other applications the proposed bandwidth of 25 kHz may be entirely adequate.

SHHH urges the Commission to adopt the channelization scheme as proposed in 95.1043, with the option to combine two or more adjacent channels. This will provide a flexible, yet orderly, means of assuring effective use of available spectrum space. We see no advantage in permitting non-channelized emissions.

b) Should the proposed scope of eligibility and/or uses of the LPRS be broadened or narrowed?

The secondary status of auditory assistance devices in the 72-76 MHz band has resulted in extreme degradation of service. Destructive interference from high powered paging and other services has, in some cases, rendered auditory assistance devices unusable. SHHH believes auditory assistance devices should have precedence over other LPRS devices, and should not be secondary to any service other than television broadcasting.

Permissible LPRS communications to assist in providing health care services to the ill should be narrowly limited to patient telemetry. Other health care uses, such as medical staff paging, are adequately provided for elsewhere and should not be considered permitted uses of the proposed LPRS.

c) What are the advantages and disadvantages of permitting eligibles in the AMTS service and eligibles in the new LPRS (Part 95 Channels only) to share each others' 216-217 MHz band channels on a secondary, non-interference basis?

Sharing of AMTS channels could provide additional spectrum space for LPRS users in locations where the AMTS service is not in active use. If AMTS services are permitted to share LPRS channels

on a secondary-non interference basis, is it essential that the AMTS be held to the same technical standards for transmitter power, antenna height, emission types and emission standards as prescribed for LPRS.

d) Are the proposed technical requirements for LPRS and AMTS (e.g. power and emission limitations) consistent with protecting adjacent TV Channel 13? Should any of the proposed technical requirements be revised or removed?

Power. In locations such as classrooms and small meeting rooms, battery-powered transmitters of 10 milliwatts power have proven entirely adequate for auditory assistance service. In larger auditoriums, line powered transmitters of 100 milliwatts power are generally sufficient. Only the very large settings, such as major league sports stadia, would require higher transmitter power for auditory assistance systems.

SHHH recommends that the 18 LPRS channels closest to TV Channel 13 (Group 1, Channels 1 through 18) be limited to very low power (10 milliwatts). Restricting maximum transmitter power to 10 milliwatts for Group 1 channels would not only limit potential interference with TV 13, but would also facilitate re-use of these channels with minimal physical separation for LPRS services in educational and other settings. We also recommend that eight

channels of the proposed LPRS Group 2 be limited to a maximum transmitter output power of 100 milliwatts, and that a new Group 3 be established, consisting of two channels with maximum transmitter output power of 1 watt.

Emission Types. In 95.1041, the proposed rule states, "An LPRS station may transmit any emission type appropriate to one-way communication in this service." At present, analog frequency modulation is the most effective radio frequency emission type for auditory assistance use. Many persons with hearing loss will use hearing aids or speech processors in conjunction with auditory assistance receivers operating on the proposed new LPRS channels. Increasing concern has been expressed for undesirable interference with operation of hearing aids and other auditory assistive devices attributable to certain emission types, such as digital Time Division Multiple Access (TDMA.) We believe that most effective use of the new LPRS channels will be achieved if emissions are restricted to types compatible with analog FM which do not cause undesirable interference with hearing aids or speech processors.

Conclusion

7. SHHH strongly supports the opening up of the 216-217 MHz band to educational and health care uses. Adoption of the rules proposed in this proceeding will further Chairman Hundt's recent

commitment to carry out the Commission's "duty to make sure that people with disabilities are able to share in the communications revolution."

We remind the Commission, however, that it cannot allow systems currently operating on the 72-76 MHz band to be abandoned. The Commission must, as quickly as possible, take action to bring relief to the burgeoning interference problem.

Respectfully submitted,

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ATTACHMENT I

SELF HELP FOR HARD OF HEARING PEOPLE, INC.
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Use of FM Auditory Assistance Devices in Schools

Educational audiologists have noted that interference with the use of FM systems in schools seems to be increasing. SHHH members have been reporting similar problems with large-area FM systems. In a collaborative effort with SHHH, the Educational Audiology Association (EEA) conducted a survey in the Fall of 1994 on the use of FM systems in schools.

The survey questionnaire was set to all the members of the EAA. Seventy-six questionnaires were returned, representing the case load of 126 educational audiologists from all areas of the country. They served 4985 children with personal FM systems (large schools for the deaf are included) and 717 classrooms utilizing FM sound-field systems.

The results showed that 76% of the audiologists report that some of their students have had interference problems, while 66% (of the total number) feel these problems are increasing. The majority of the respondents (63%) were able to identify the source of interference. The major sources of interference, by number of respondents, were pagers (17), cellular phones (10), emergency dispatch vehicles (10), radioTV channel (7), electronic equipment (5), CB/ham radio transmissions (4),walkie-talkie radio (4) and vehicle dispatchers (3).

When confronted with interference, the audiologists would either change channels or equipment or return the equipment to the vendor. Ten of them tried to convince the interference source to change their FM use patterns, but none succeeded. The period of "down" time, while the problem was being resolved averaged 4 to 7 days, with a range from one day to more than 2 weeks. During this period, 41% of the children were without their equipment, 39 % used loaner systems, and 20% of them continued to use the problem systems. Twenty five percent of the respondents reported instances (a total of 29) in which inteference problems precluded fitting an FM system to a child

One of the questions asked the respondents to note the impact of the down time on the educational process. Just about every respondent took the time to answer this open-ended question. Most all of them report frustration, on their part, the teachers, and the parents. Instances are given where children's grades and behavior changed for the worse. Some example comments follow:

*"One student who didn't want to wear an FM to begin with, thought it was wonderful! Unfortunately, after repeated interference problems, she decided this was a good enough excuse to abandon FM totally & I was unable to convince her to try again. ...Also we go to great lengths trying to convince mainstream teachers that FM provides great benefits to the children. Then, when they observe repeated problems, there is difficulty having them continue what they already consider just 'another' burden."

*"With any down time I see student decrease in their independent functioning in the classroom and increase in dependence on the teacher for repetition, clarification, and reteaching"

*"Frustration for student and teacher. Causes disruption over an extended period as the problem is usually internmittent If either student or teacher don't see value of FM it can provide the excuse to stop using FM altogether".

*"Teachers burdened by continual problems. Could we be teaching little ones to tune out due to unclear signals?"

*"Students are distracted and confused. At least once a week a class comes to a halt because the teacher cannot use the FM. Management of interference occurs and disrupts each day."

In brief, the survey shows that interference problems with the use of FM systems is widespread, increasing, and causing educational and behavioral problems.

Comments regarding student reaction to down-time caused by FM interference and its impact on the educational process: (Note: some comments have been abbreviated)

a) Student's accept without much comment. Teacher's may be anxious for return of FM.
b) Negative reaction from teachers, not students, to down time is our greatest problem.
c) FM interference is most aggravating to mainstream students and that's where the interference problems occur, not to deaf students!
d) Students use their personal hearing aids.
e) Most of the children are glad to be without the units.
f) Parents become upset and start calling administrators.
g) The older students are thrilled, the younger students are lost.
h) We've been able to keep down-time to a minimum, but even a few hours can cause frustration to audiologist, student and teachers.
i) Reaction varies depending upon reliance on equipment.
j) Teachers/students seem to adapt well (hearing aids only for a day or two). Impact seems minimal, although some express disappointment.
k) Most students are pleased with down-time; reaction from teachers is mixed (relief, frustration), parents are supportive.
l) With any down-time I see student decrease in their independent functioning in the classroom and increase in dependence on the teacher for repetition, clarification, reteaching.
m) Students cannot receive instruction adequately, they are distracted, at times even the entire class is disrupted.
n) Frustration for student and teacher. Causes disruption over and extended period as the problem is usually intermittent. If either student or teacher don't see the value of FM it can provide the excuse to stop using FM altogether.
o) Interference has been a successful excuse for students to not wear their FM systems. Teachers burdened by continual problems. Could we be teaching little ones to tune out due to unclear signals?
p) In the few cases of down-time, children either keep asking for it or become more resistant to wearing the FM when it returns.
q) Students are often pleased - don't like stigma. It is then very difficult to achieve user and teacher acceptance when the problem is resolved.
r) Most are happy to lose the FM. A couple actually miss it - these kids always receive a loaner unit.
s) Students are reluctant to continue wearing even after FM is fixed. Teacher gets out of habit of wearing FM and hard to reinstate use.
t) Use personal hearing aids.
u) There is extreme frustration on the part of the student, classroom teacher and audiologist. Amount of audiologist's time dealing with the problem has been excessive.
v) Down-time is very frustrating for student and teacher.
w) Parents upset about it. Lack of motivation to use unit when it returns.
x) Extreme frustration by teachers - some cases where teacher and/or student abandons FM.
y) Children frequently complain about the interference and are distracted by it.
z) Teacher irritated with interference through sound field FM unit. Student frustrated by personal FM interference and time needed for repair.
aa) Biggest problem with companies who use wide band signal for sound field.

bb) Students not particularly bothered due to severity of hearing loss (deaf school).
cc) Student will notice static/interference and the class will usually stop.
dd) Frustration! Students blame the FM system. Equivalent to missing those days of school for many children.
ee) If a student does not get an FM loaner he will eventually lose interest in using it. Student's lack of motivation to resume FM use may affect educational performance.
ff) Teachers and students rely on the audiologist to locate an FM channel that can be used in their school building.
gg) Students are less responsive; teachers exasperated.
hh) Detrimental! Students often have a hard time describing problem when interference is intermittent. Hard to catch.
ii) Children sometimes become upset (especially in the mainstream) and so do their parents!
jj) Teachers very frustrated. More oral students were bothered by it; wanted to take off equipment even if they needed it in the mainstream.
kk) Students are distracted and confused. At least once a week a class comes to a halt because the teacher cannot use the FM. Management of interference occurs and disrupts each day.
ll) Many students have learned that they can manipulate a frustrated teacher into allowing them to go without their FMs by claiming interference. The effects on students and teachers vary. Some are very upset and others are elated at not having to use a device that they hate wearing.